



Chemical & Biological National Security Program (CBNP)

Presentation to the WMD Terrorism Preparedness and Response Conference

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The Goal







The Near-Term Future









NNSA CBNP Program

- Focus is technology development for chemical and biological domestic preparedness
- Two tier approach
 - Develop technologies (Thrust Areas)
 - Demonstrate technology solutions (DDAPs)
- Leverage National Laboratory expertise





The CBNP technology development initiatives focus on four key areas

Detection



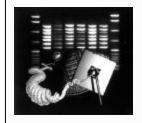
Goal: To provide early warning, identify people to treat, and identify contaminated areas with high sensitivity and low false alarms.

Decontamination



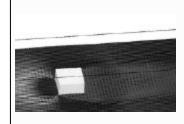
Goal: To quickly restore civilian facilities (untreated contamination may remain for 10's of years).

Biological Foundations



Goal: To provide essential biological information for detection, and medical countermeasures.

Transport Modeling



Goal: To develop predictive modeling tools for urban environments (inside & outside of facilities).



Domestic Demonstration and Application Programs (DDAPs)



Objectives:

- Partial, near-term solutions to difficult problems
- User participation throughout entire program
- Real capability enhancements via equipment "leave behinds"
- Guidance to R&D efforts leading to more capable future systems

Fixed System

PROTECT: Program for Response Options and Technology



Deployable System

BASIS: Biological Aerosol Sentry & Information System







CBNP Roadmap

		FY00	FY01	FY02	FY03	FY04
DDAPs	PROTECT	Subway vulnerability assessment/response strategies	Integrated chemical detection demonstration (one station)	Integrated detector- response demonstration at one airport.	Chemical detection system demonstration at 5 subway stations	Preparedness system fielded for 4 subway systems
	BASIS	Architecture development for city protection	Integrated biological early warning system demonstrated for metropolitan area	Prototype biodetection system deployment at a special event	Andhitecture development for 2nd generation systems	Enhanced system deployments
	Forensics		Bioogent "geolocation" capability for two pathogens	Limited capability to recognize genetically engineered agents	Technological protocols for event reconstruction	"Geolocation" and engineered agent ID for additional agents
	Decontamination			System design studies	Mabile gel and foom systems demonstrations	Initial system fielded with sampling & analysis tools
Technology Development	Biological Foundations	DNA fingerprinting of 2-5 BW pathogens	Speed of signature development doubled	Identification of virolence pathways for 5 BW agents	Ten-fold improvements in time and cost for DNA-based detection	Additional methods com- plement DNA-based assays for faster, higher- confidence results
	Modeling and Prediction	Guidance for response to releases in office buildings	Urban experiment, Web access to CB models for planning	Integrated interior/exterior model for vulnerability analysis	Begin transition to oper- ational capability	Operational outdoor pre- dictive capability fielded for national use
	Detection	Handheld prototype test- ed on top chemical & biotoxin agents	PCR module added to APDS	Complete and evaluate the prototype Biochip	Field test autonomous sensor for ten BW pathogens	Field test virus module in hand-held chemical & biotoxin sensor
	Decontamination	Live agent testing with environmentally benign gels & foams	Gel and foam technolo- gies commercialized		Ony plasmo-based system tested on broad range of materials	





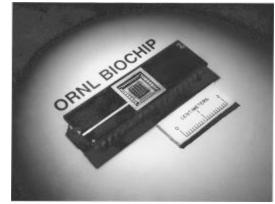
Thrust: Detection





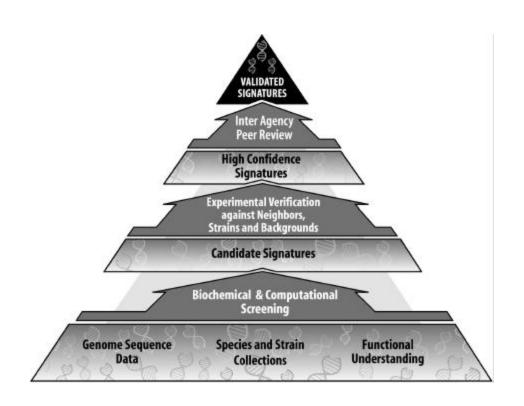








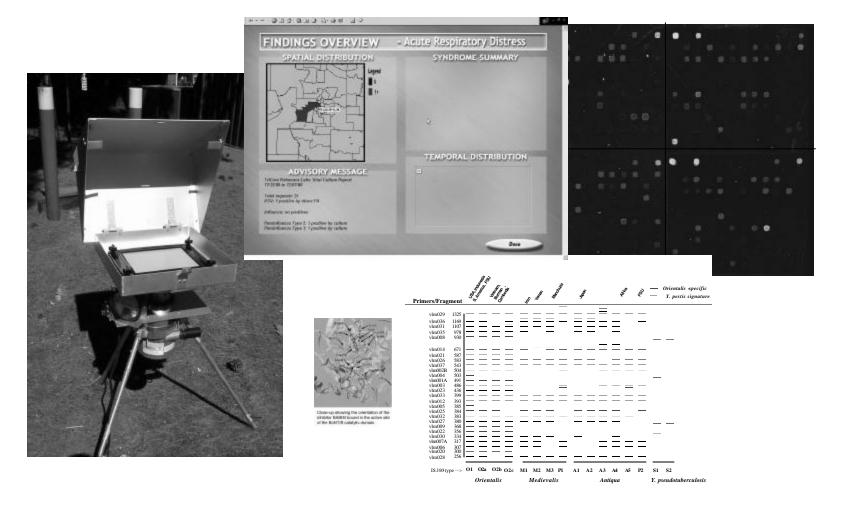
Thrust: Biological Foundations







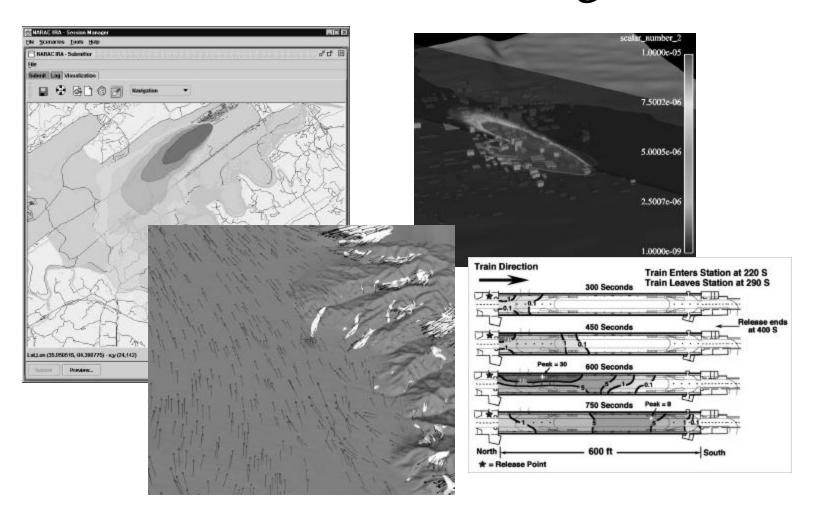
Thrust: Biological Foundations







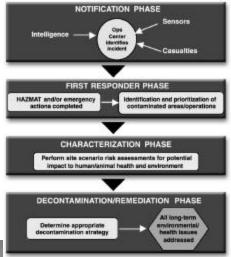
Thrust: Modeling







Thrust: Decontamination











PROTECT

Modeling and Prediction Tools

Response/Mitigation Strategies

Detector/CCTV Systems

Communication Systems

Decision Support Tools Hardware/Software Implementation Technologies

First Responder Tools

Countermeasures

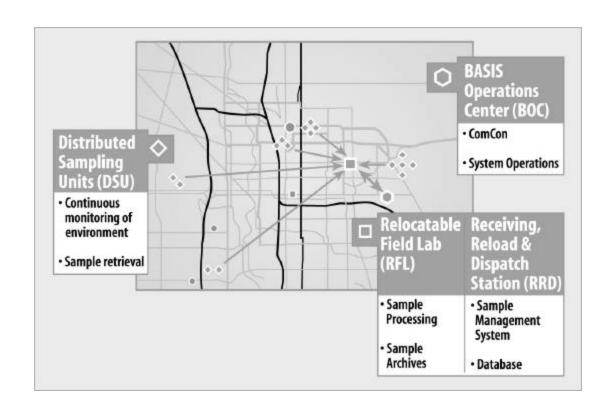








BASIS







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